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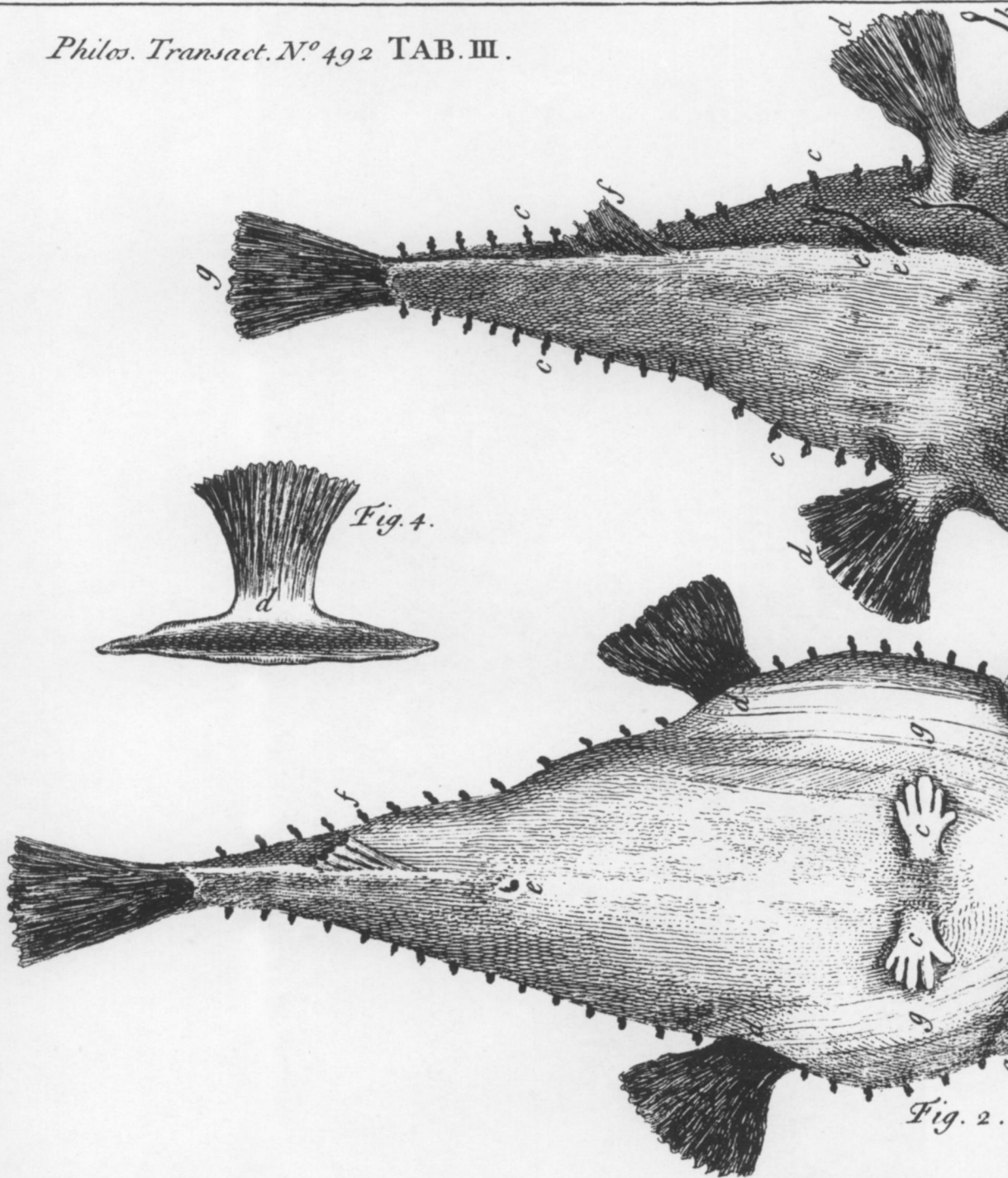
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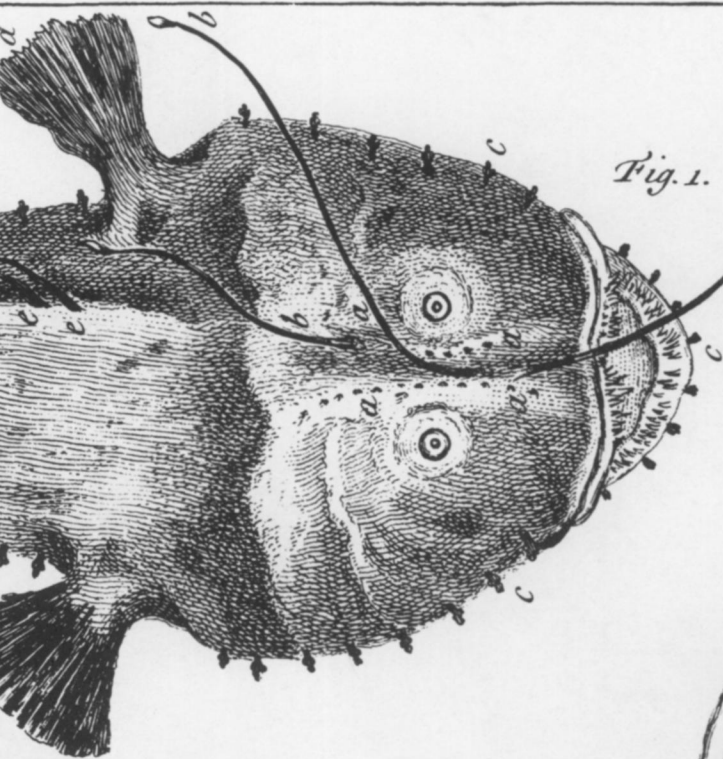


Fig. 1.

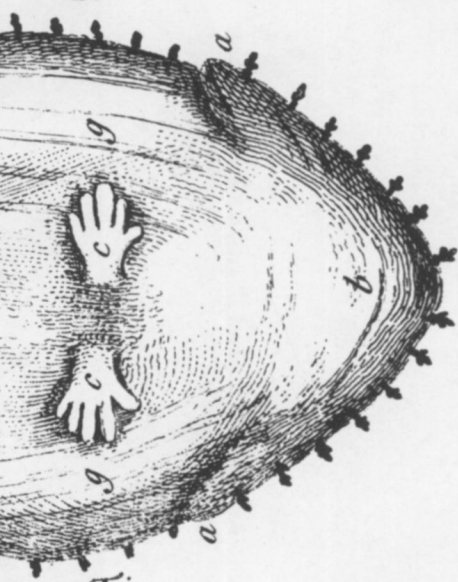
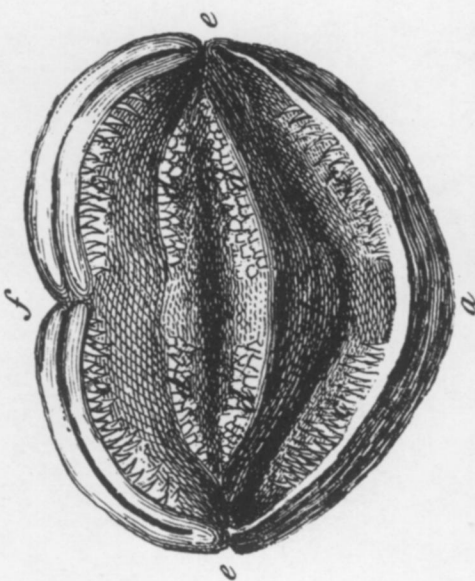


Fig. 2.

Fig. 3.



VII. *Some Account of the Rana Piscatrix; by James Parsons M. D. F. R. S.*

Read April 17. 1749. **I**N some Parts of *Italy* this Fish is called *Rospo*; in others *Bora*; and by the *Lombards Zatto*.

Lophius ore cirroso, Petrus Artedus.

ὁ ἄλιος βάτον, βαλραχὺς ἄλιος.

Aristot.

Rana Piscatrix, by the following Authors; viz. *Bellonius, Rondelletius, Salvianus, Gesnerus, Charleton, Willoughby, Ray.*

Piscatrix vel marina. Schonveld.

———— *vulgaris. Aldrovand.*

ALTHO' this Fish is already described by most of the Natural Historians, yet several of its Properties appear to have been overlook'd; and as I am persuaded many of this Learned Society may not have seen it, I laid hold of this Opportunity to lay it before them, with some little Account, and Drawings, I believe nearer the Truth than any exhibited already; referring the Curious to the general History of this Animal, as collected by *Gesner*; and to Sir *George Ent's* Account and Dissection of him, as deliver'd by Dr. *Charleton*, in his *Exercitationes de Differentiis et Nominibus Animalium*; whose Figure of him is copied by *Willoughby* with most of the Dissertation, and which, if I mistake not, was taken from *Salvianus* by Dr. *Charleton*, for the better Illustration of Sir *George's* Dissertation.

This Animal is four Feet three Inches long, and about nineteen Inches from Side to Side in the widest

Part. His Mouth is very wide, and his Teeth are set in Clusters in both the upper and under Jaws, and not in regular Rows, as was the vulgar Opinion: They are long and small like Spikes, moveable, and directed inward, in order to secure his Prey from escaping, after he has once laid hold on him. His lower Jaw is longer by far than his upper; having a large Capacity in the Skin of the former, to yield according to the Bulk of the Creature he seizes; for with this Jaw, and the external Clusters of the Teeth of the upper Jaw, he holds it fast, whilst with another inner cartilaginous Jaw (whose Teeth correspond with an inner Cluster of Teeth in the upper) he chews and tears his Prey, swallowing it by degrees as he minces it; neither the under Jaw, nor external Row of the upper, having any Share in the Mastication at all.

Altho' he is said to be of the cartilaginous kind, his Head is as bony as that of any Fish; having rough spiny Ridges, serving as Eye-brows. Between these arise three black limber Twigs; the anterior is longest, the second shorter, and the next shortest; each having at its Extremity a white flat Piece, with which, it is said, he allures other Fish to approach near enough to seize on them. There are two others less considerable on his Back, between those Fins or Webs, which, in him, must be call'd *humeral* Webs.

These Webs are cartilaginous and fleshy, and are supported by strong Bones, analogous to the humeral Bones of some other Animals. Under each of these is a *Sacculus* or *Marsupium*, which runs up the Side of his Head, 28 Inches deep, and 6 Inches wide: These

These have not been duly taken notice of, except I think by *Bellonius*, who mentions two Holes, without adding any thing else about them. But they are of so singular a Nature, that I think there is some Encouragement to make the following Conjecture.

The branchial Holes are three on each Side, which are situated deep in the Mouth, and open into these *Marsupia*, the Sides of which are the *Branchiostegæ*, having several long slender cartilaginous Bones running longitudinally for their Support, analogous to the branchiostegal Bones of other Fishes; so that probably these Sacks may answer two Ends; first, to form the *Membranæ branchiostegæ*; and, secondly, to make a convenient Receptacle for the Young, till they are able to shift for themselves. Perhaps the following Conjectures may serve to strengthen this Opinion; for if this End was not to be answer'd, the *Branchiæ* might have been terminated near their Origin in the Mouth, as it is in other Fishes.

Authors have ranked this Fish among the cartilaginous Tribe, who are said to be viviparous; but of this there are Disputes among them as yet undetermin'd. Now if this Fish does not bring forth its Young perfect, there can be no Use assign'd to these Sacks; for Eggs are deposited by the oviparous Tribe in Sand, Weeds, or any other proper *Nidus*; nor could the Creatures by any means place Eggs in them, because they open in a wrong Direction for such a Purpose. But if they are viviparous, then the Young may probably be harbour'd in them, being capable of crawling into them, as we may see by the pectoral Webs on the under Side.

And to strengthen this Conjecture, we may draw another Consideration from the Manner of their Feeding; for these are Creatures of no swift Motion, and crawl on Bottoms of shoal Places, watching and alluring their Prey; now their Young cannot be supposed to have Power or Sagacity enough for this Work, till they are grown large and strong, and have these Twigs in Perfection; therefore they must of Necessity be protected by the Parent, till they are able to provide for themselves; which probably may be when they grow too large to enter into these *Marfupia*.

There are seven small finny Webs like little indented Leaves, on each Side the under Jaw, and others of the same kind all round the Sides to the Tail.

He has a dorsal Fin near the Tail upon the Spine, and a ventral fleshy Fin nearer the Tail than the former.

The five-finger'd Webs under the *Thorax* are rough and fleshy, shewing their Business is to assist in slowly crawling from Place to Place; and there appears the Vestige of the Spine from the Place of the Vent to the Tail on the most posterior Part of the Belly.

These are what I thought worthy your Notice, and hope they will have produced the Effect I designed; which was no more than to entertain you, by illustrating any singular Piece of natural History, that may happen to fall in my Way; especially in such Subjects as do not often occur.

As to the Sex of the Fish, I could be no Judge of it, nor of any internal Part, as the *Viscera* had been

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taken

taken out before I saw it, and all Appearances destroy'd that might inform us ; and therefore we must refer the Reader to that curious Dissection of it made by the learned Sir *George Ent*, as it is quoted by *Charleton*, in his *Mantissa Anatomica*.

References to the Figures.

Fig. I. is a back View of the *Rana piscatrix*.

aa, the bony Ridges and Asperities between the Eyes ;
from the central *Sulcus* of which arise

bbb, the three *Virgæ piscatoriae*, or Fishing rods.

cc, the *Cirruli*, or little Webs, all round the Borders of the Fish.

dd, the large humeral Fins, under which are the Openings into the *Marsupia* and *Branchiæ*.

ee, the two posterior Rods.

f, the posterior and superior spinal Fin.

g, the Tail, which in this Fish is vertical.

Fig. II. A View of the under Surface or Belly of this Fish.

aa, the Angles of the lower Jaw, seen and felt through the Integuments.

b, the Skin or Floor of the Mouth capable of stretching into a Sack, according to the Bulk of the Prey he holds.

cc, the fleshy five-finger'd Webs, by which they crawl upon the Bottoms of Shoals.

dd, the Openings into the *Marsupia* and *Branchiæ*.

e, the Vent or *Anus*.

f, the posterior and inferior spinal Fin.

g, the cartilaginous *branchiostegal* Bones.

Fig.

Fig. III. is a View of the Mouth open'd to shew,

a, the Skin of the Floor of the Mouth, as at *b* in *Fig. II.*

b, the Tongue.

cc, the external Teeth in the upper and under Jaws, for holding the Prey.

dd, the corresponding Clusters of Teeth in the inner cartilaginous Jaw, for Mastication, and tearing the Prey.

ee, the *Rictus oris*. *f*, the upper Jaw. *g*, the Entrance into the *gula* and branchial Holes.

Fig. IV. is a full View of the Opening into the *Marfupium*, lying under the Fin *d*.

VIII. Observations on the Height to which Rockets ascend; by Mr. Benjamin Robins F. R. S.

Read May 4. 1749. **T**HE Use of Rockets is, or may be, so considerable in determining the Position of distant Places to each other, and in giving Signals for naval or military Purposes, that I thought it worth while to examine what Height they usually rise to, the better to determine the Extent of the Country, through which they can be seen. I therefore, at the Exhibition of the late Fire-works, desir'd a Friend of mine, who I knew intended to be only a distant Spectator, to observe the Angle of Elevation to which the greatest Part of them rose, and likewise the Angle made by the Rocket or Rockets, which should rise the highest of all.